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US006358510B1

(12) **United States Patent**
Springer et al.(10) **Patent No.:** **US 6,358,510 B1**
(45) **Date of Patent:** **Mar. 19, 2002**(54) **ICAM-1 DERIVATIVES WITH ALTERED ABILITY TO BIND LFA-1**(75) **Inventors:** **Timothy A. Springer**, Newton, MA (US); **Michael L. Dustin**, University City, MO (US); **Robert Rothlein**; **Steven D. Marlin**, both of Danbury, CT (US)(73) **Assignee:** **Dana Farber Cancer Institute**, Boston, MA (US)(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.(21) **Appl. No.:** **08/479,763**(22) **Filed:** **Jun. 7, 1995****Related U.S. Application Data**

(60) Division of application No. 08/186,456, filed on Jan. 25, 1994, now Pat. No. 5,612,216, which is a division of application No. 07/515,478, filed on Apr. 27, 1990, now Pat. No. 5,284,931, and a continuation-in-part of application No. 07/456,647, filed on Dec. 22, 1989, now abandoned, and a continuation-in-part of application No. 07/373,882, filed on Jun. 30, 1989, now abandoned, and a continuation-in-part of application No. 07/324,481, filed on Mar. 16, 1989, now abandoned, and a continuation-in-part of application No. 07/250,446, filed on Sep. 28, 1988, now abandoned, and a continuation-in-part of application No. 07/189,815, filed on May 3, 1988, now abandoned, and a continuation-in-part of application No. 07/155,943, filed on Feb. 16, 1988, now abandoned, and a continuation-in-part of application No. 07/115,798, filed on Nov. 2, 1987, now abandoned, and a continuation-in-part of application No. 07/045,963, filed on May 4, 1987, now abandoned.

(51) **Int. Cl.⁷** **A61K 38/17; C07K 14/435; C07K 14/705**(52) **U.S. Cl.** **424/185.1; 424/184.1; 530/300; 530/350**(58) **Field of Search** **530/300, 350, 530/395; 424/185.1, 184.1; 435/69.3**(56) **References Cited****U.S. PATENT DOCUMENTS**

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Primary Examiner—Phillip Gambel(74) **Attorney, Agent, or Firm**—Sterne, Kessler Goldstein & Fox P.L.L.C.(57) **ABSTRACT**

The present invention relates to intercellular adhesion molecules (ICAM-1) which are involved in the process through which lymphocytes recognize and migrate to sites of inflammation as well as attach to cellular substrates during inflammation. The invention is directed toward such molecules, screening assays for identifying such molecules and antibodies capable of binding such molecules. The invention also includes uses for adhesion molecules and for the antibodies that are capable of binding them.

4 Claims, 25 Drawing Sheets